QUALITY ASSURANCE REPORT

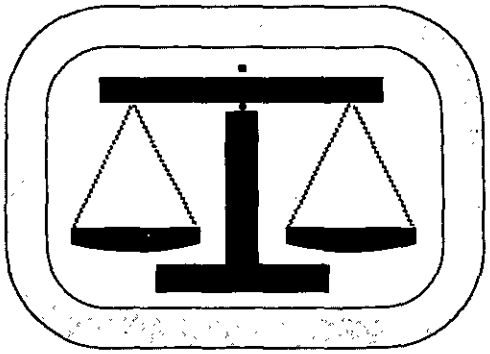
for Contract DACW-33-81-C0030

Work Order Number 13

East Boat Basin, Cape Cod Canal

Sandwich, MA

31 August 1981



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164 Washington Street, Norwell, MA 02061 ▶ Telephone (617) 773-2780

6 October, 1981

JBF

Mr. Joe B. Fryar
Chief Engineering Division
New England Division
U.S. ARMY CORPS OF ENGINEERS
424 Trapelo Road
Waltham, MA 02254

RE: Contract DACW 33-81-C-0030
Work Order No. 13

Dear Mr. Fryar:

In accordance with Work Order No. 13 dated 21 July 1981, we enclose one (1) copy of our Quality Assurance report for the environmental sampling conducted at the East Boat Basin, Cape Cod Canal. Two (2) additional copies have been delivered under separate cover to your Geotechnical Branch. If you have any questions or comments, please do not hesitate to call.

Very truly yours,

David S. Campbell, P.E.
Executive Vice President

DSC/ja
Enclosure

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# 1.0 GENERAL

## 1.1 AUTHORIZATION

The authority for this project is derived from Document no. 168 of the House Committee on Public Works and Transportation Resolution dated 9 May 1979. Work reported herein was performed under contract DACW 33-81-C-0030, Work Order No. 13 dated 21 July 1981.

## 1.2 PURPOSE

The purpose of the work was to perform a Quality Assurance (QA) certification of sediment and water sampling performed by the contractor, Energy Resources Company Inc.(ERCO), 185 Alewife Brook Parkway, Cambridge MA 02138, at the East Boat Basin, Cape Cod Canal, Sandwich, Massachusetts.

# 2.0 DESCRIPTION OF WORK

## 2.1 GENERAL

On 17 August 1981 Mr. Jeffrey B. Shelkey, our in house marine biologist, performed a QA check on work being conducted by ERCO. The following is a summary of our observations and comments on the the work being conducted. Mr. Shelkey's complete shift report is included as Appendix A to this report.

## 2.2 SAFETY

All operations were conducted in a safe manner. The contaractor's personnel were equipped with U.S. Coast Guard approved Personal Flotation Devices (PFD). In addition personnel were wearing hardhats and gloves for head and hand protection.

## 2.3 SEDIMENT SAMPLING PROCEDURES

The following is a description of the various sediment sampling procedures used on this project.

2.3.1 General: The contractor obtained sediment samples from the locations on the layouts developed by the New England Division and as outlined in the work order. Both gravity coring and grab sampling were conducted. A total of 10 gravity cores were attempted of which 4 had sufficient recovery. Six grab samples were also conducted. Sampling locations were located by means of a sextant.

2.3.2 Handling of Sediment Samples: Sediment samples were maintained in an upright position at all times. The samples were allowed to settle for at least 15 minutes before a small hole was punched in the tube to allow drainage. The puncture was approximately 1 inch above the soil water interface and was subsequently sealed with tape. Grab samples were placed in air tight 15" x 30" polyethleyene bags. All samples were placed in iced containers immediately after acquisition and were maintained between 1.0 and 4.0 degrees Centigrade.

## 2.4 WATER SAMPLING PROCEDURES

The following is a description of the various water sampling procedures used on this project.

2.4.1 General: Water sampling was conducted at the locations on the layouts developed by the New England Division and as outlined in the work order. A total of sixteen gallons were recovered, eight in plastic bottles and eight in glass bottles. Sampling locations were located by means of a sextant.

2.4.2 Handling of Water Samples: Water samples were placed in both one gallon PVC bottles with polyethylene screw caps and one gallon glass jugs with teflon-lined screw caps. After filling the samples were placed in iced containers and maintained between 1.0 and 4.0 degrees Centigrade.

## 2.5 EQUIPMENT

The gravity coring equipment used was a Benthos sampler capable of holding either cellulose butyrate or polycarbonate tubes with the following dimensions:

2-7/8" ID x 3.0" OD

The end caps for the tubes were tight fitting polyethylene which were taped to the ends of the recovered tubes. The Ponar grab sampler was capable of holding a minimum of one cubic foot.

The water sampler used was a PVC "Goflo" type manufactured by General Oceanics with a capacity of 2 1/2 gallons. The sampler was actuated by a messenger trigger riding on a non-metalic cable. No stainless steel sampler was aboard.

All sampling equipment was clean and in good condition prior to use on this project.

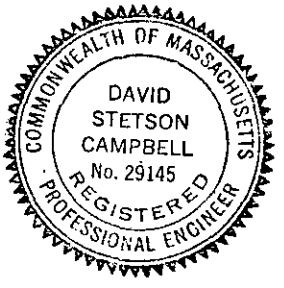
## 2.6 SAMPLER PREPARATION

The various pieces of sampling equipment were prepared in ERCO'S laboratory prior to their arrival at the dock therefore we are unable to comment on whether the gravity corer, bottles, grab sampler, or water sampler were prepared in accordance with the specifications.

## 3.0 QUALITY ASSURANCE CERTIFICATION

I hereby certify that the above equipment and procedures were used to perform the environmental sampling at the East Boat Basin, Cape Cod Canal, Sandwich, MA on 17 August 1981.

David S. Campbell, P.E.
Massachusetts No. 29145



BRIGGS ENGINEERING CORPORATION

WEEKLY SAFETY MEETING

TO: Safety Office, NED

FROM: Field Engineer

Date held 17 August 1981

THRU: Project Engineer

Time 0630hrs

Weekly safety meeting was held this date for the following personnel:
Contract No. DACW 33-81-C-0030 Personnel present: J. Shelky
Work Order No. 13
Conducted By: J. Shelky

1. Subjects discussed (Note, delete, or add):

x Individual Protective Equipment -
Prevention of Falls -
Safe Lifting Techniques -
x Emergency Communications -
Fire Prevention -
Sanitation, First Aid -
Tripping Hazards - trash, hose, nails in lumber -
Staging, Ladders, Concrete Forms -
Hand Tools -
Portable Power Tools -
Woodworking Machinery -
Equipment Maintenance (Zero defects) -
x Hoisting Equipment -
Ropes, Hooks, Chains and Slings -
Electrical Grounding, Temporary Wiring -
Lockouts for safe clearance procedures -
Electrical, pressure, moving parts -
Welding -
Excavations -
Loose Rock and Steep Slopes -
Explosives -
x Water Safety -
Other -

Prepared by: Jeffrey Shelky
Field Engineer

2. Exposure:
For 17 August covering 1 man
for 7.75 man-hours

Signature:
Project Engineer

3. Forwarded: NED, Waltham, MA

# APPENDIX A

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Briggs Engineering Co.

Shift Report

DATE: 17 August 1981
SHIFT NO: [ 1 ]
PROJECT: Sediment Sampling at East Boat Basin, Sandwich MA
INSPECTOR: Jeffrey B. Shelky

TIME: 0700-1445 COMMENTS

Weather: Clear, sunny air temperature 75 degrees Fahrenheit

Arrived at the dock and met the fishing vessel "Angenette" and Capt. Ron Borgeson. Took on 300 lbs of crushed ice for sample preservation.

Proceeded to the dock to pick up the sampling gear and ERCO personnel; Tim Ward, Robert Boeri, and Christine Smith. The Benthos gravity corer was assembled on deck with 80 kg of lead weight at this time.

Station E was located by sextant and the anchor was set.

Water Sampling began using a 2 1/2 gallon General Oceanics PVC "Goflo" water sampler. Samples were taken three feet above the bottom and one plastic and one glass bottle were filled with each sample attempt. Eight attempts were made and a total of 16 gallons of water were retained. The retained bottles were stored in iced styrofoam coolers. Water sampling was completed at 0930.

Sediment sampling was begun at Station E using an eight foot Benthos core liners. The first sample had only a 6 inch recovery and was discarded. An additional 40kg was added to the sampler for a total weight of 120kg. The second attempt yielded less than 6 inches of sediment. A third attempt was made and less than 6 inches was recovered again. Returned to the dock and picked up the Ponar grab sampler.

Relocated on Station E and initiated sampling with the grab sampler. Three polyethylene bags were taken. The bags were sealed with tape, labeled, and placed in styrofoam coolers with ice.

Secci disk readings were taken using a disk and tape. The disk was visible to a depth of 10 ft - 11 inches. Water depth was 16 ft as determined by line sounding.

Station D was located by sextant and the anchor was set.

Three attempts were made to obtain core samples; approximate recovery of 4 inches, 3 1/2 inches, and 6 inches. Commenced grab sampling. Three bag samples were placed in polyethylene bags, sealed with tape, and placed in iced styrofoam coolers.

Secci disk readings were taken using a disk and tape. The disk was visible at a depth of 11 ft - 7 inches. Water depth was 18 feet as determined by line sounding.

Station F was located by sextant and the anchor was set.

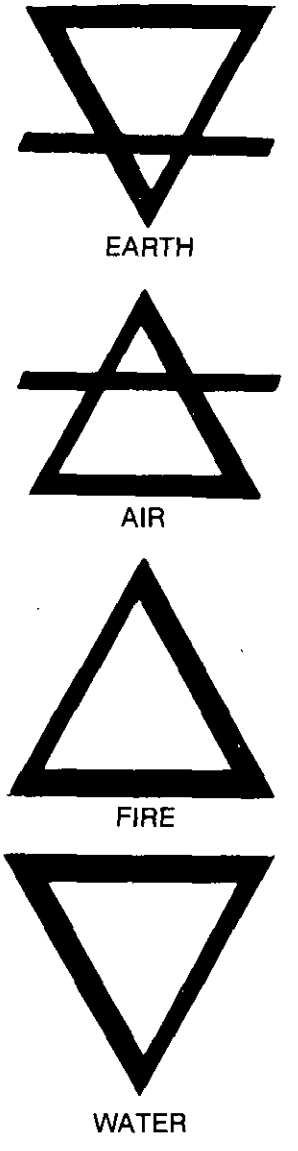
Core sampling was begun using 120 kg of lead weights. The first core had a measured recovery of 32 inches, the second third and fourth tubes had recoveries of 39 inches each.

Secci disk readings were taken using a disk and tape. The disk was visible at a depth of 11 feet - 8 inches.

Fifteen minutes after sampling the core liners were punched and drained of water to one inch above the soil water interface. The liners were cut capped and sealed and placed on ice prior to shipping.

Returned to dock to unload vessel. Samples were shipped in ice in the styrofoam coolers

In ancient times
Greek and Hindu philosophers
believed that there were
four elements in the material universe
— EARTH, AIR, FIRE and WATER.
Over the years
man's knowledge has expanded
and the world of materials
is now known to be extremely complex.
The unravelling of these complexities
is the continuing goal of
Briggs Engineering & Testing Company.

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## Engineering and Testing

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